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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,507	02/17/2004	James I. Mullins	08987-023001	7871
26161	7590	01/22/2008	EXAMINER	
FISH & RICHARDSON PC			PENG, BO	
P.O. BOX 1022			ART UNIT	PAPER NUMBER
MINNEAPOLIS, MN 55440-1022			1648	
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			01/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/780,507

Applicant(s)

MULLINS ET AL.

Examiner

Bo Peng

Art Unit

1648

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 19-22, 25-30, 45, 46, 48 and 63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15, 19-22, 25-30, 45, 46, 48 and 63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/8/07 & 1/11/07</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Sequence alignment</u> . |

DETAILED ACTION

1. This Office action is in response to the amendment filed August 7, 2007. Claims 1-14, 16-18, 23, 24, 31-44, 47 and 49-62 are cancelled. New Claim 63 is added. Claims 15, 19-22, 25-30, 45, 46, 48 and 63 are pending and are considered in this Office action.

Claim Objections

2. **(Prior objection-withdrawn)** The objection to Claims 15, 48 and 51 **is withdrawn** in view of the amendment to the claims.

3. **(New objection)** Claims 45, 46 and 48 are objected to for lacking transitional phrases. For the purpose of examination, the claims are interpreted as “comprising” ...SEQ ID NO: 25. Appropriate correction is required.

35 USC § 112, second paragraph

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **(Prior rejection-withdrawn)** The rejection of Claim 45, under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, **is withdrawn** in view of the amendment to the claim.

6. **(Prior rejection-maintained)** The rejection of Claim 48, under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, **is maintained** because the term “circulating

virus” remains unchanged.

35 USC § 112, first paragraph

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. **(Prior rejection-withdrawn)** The rejection of Claims 15, 19-22 and 25-30 under the first paragraph of 35 U.S.C. 112, as failing to comply with the written description requirement, **is withdrawn** in view of the amendment to the claims.

9. **(Prior rejection-maintained)** The rejection of Claims 45, 46 and 48 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, **is maintained** for the reasons of record.

10. Applicant argues that the present claims refer to nucleic acid sequences that are at least 70% identical to SEQ ID NO: 25, which is an example of a COT sequence. They further argue that since the claimed nucleic acid sequences are defined by a particular percent identity to a defined sequence, the present claims meet the written description requirement.

11. Applicant’s argument is considered but not found persuasive for the following reasons: First, since the present claims require a COT viral sequence that is at least 70% identical to COT sequence SEQ ID NO: 25, the scope of Claims 45, 46 and 48 encompasses an enormous genus of undefined nucleic acid sequences. However, the specification lacks sufficient description of a

representative number of species by actual reduction to practice to show the applicant was in possession of the claimed genus. The following quotation from MPEP 2163:

The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice..., reduction to drawings..., or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus... See *Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406.

A "representative number of species" means that the species which are adequately described are representative of the entire genus. Thus, when there is substantial variation within the genus, one must describe a sufficient variety of species to reflect the variation within the genus.

Thus, when a claim covers a genus of inventions, the specification must provide written descriptive support for the entire scope of the genus. Support for a genus is generally found where the applicant has provided a sufficient number of examples so that one skilled in the art would recognize from the specification the scope of what is being claimed. In the present case, although the application discloses three COT sequences that represent HIV gag gene sequence, the specification has not disclosed sufficient COT sequences that are 70%, 90% or 95% identical to SEQ ID NO: 25 to show the applicant was in possession of the claimed genus.

12. Secondly, the specification has not described how to distinguish the claimed COT sequences that are 70%, 90% or 95% identical to SEQ ID NO: 25 from the non-COT sequences that are 70%, 90% or 95% identical to SEQ ID NO: 25. As discussed in the previous Office action, the claimed COT sequence is not adequately described since the reference frame (entity) that is necessary to constitute a phylogenetic tree is lacking or not defined in either the specification or the claims. Without specific sequence data to which the algorithm is to be applied, the resulting calculated COT sequence is not known. Because one of ordinary skill in the art cannot envision what the COT sequences are, he or she cannot further distinguish the

COT sequences from non-COT sequences in all possible sequences that are 70% identical to SEQ ID NO: 25. Therefore, the claimed COT sequences that are 70%, 90% or 95% identical to SEQ ID NO: 25 do not have sufficiently defined characteristics for the written description.

35 USC § 112 –Scope of Enablement

13. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. **(Prior rejection-maintained-extended)** The rejection of Claims 15, 19-22, 25-30, 45, 46 and 48 under 35 U.S.C. 112, first paragraph, as lacking enablement requirement is **maintained**, and now extended to new Claim 63, for the reasons of record.

15. Applicant argues that the present claims are not for vaccine composition, but are drawn to nucleic acid molecules and vectors, which have other uses, such as in diagnosis. Therefore, the claimed nucleic acids meet the enablement requirement.

16. Applicant's argument is not convincing because the specification has not shown how to use the alleged COT sequence for any diagnostic uses. As Claim 48 recites: "the COT viral sequence does not have 100% identity with any circulating variant", then, what specific subjects can the alleged COT sequences be used to diagnose? For example, the COT sequence SEQ ID NO: 25 has insufficient specificity for diagnostic use. As shown in the sequence alignment attached to this Office action, the COT sequence SEQ ID NO: 25 is 98.3 % identical to known wild type HIV NL4-3, and 1.7% nucleic acids that "do not have 100% identity to any circulating

variants". It is known in the art that it requires specificity of a probe to diagnose a target sequence. The COT sequence SEQ ID NO: 25 could recognize some NL4-3-like variants since it shares 98.3% homology with sequence of NL4-3, but the other 1.7% nucleic acids of SEQ ID NO:25 cannot recognize any circulating variants. Obviously, SEQ ID NO: 25 has insufficient specificity for diagnose any circulating variants except NL4-3-like variants. Therefore, the specification has not shown what are the specificity of the alleged COT sequences, including the COT sequence SEQ ID NO:25, for their diagnostic use.

17. Similarly, it is unpredictable in the art what the outcomes/advantages of the COT sequences are over wild type sequences for their use as vaccine. The art teaches that cytotoxic T lymphocyte (CTL) recognition also require sequence specificity. A single mutation in NL4-3 epitope can lead to cytotoxic T lymphocyte (CTL) escape in chronic HIV-1 infection (Draenert, 2004, J. Exp. Med. 199(7):905-915). Since the artificial epitopes of the COT sequence SEQ ID NO:25 are not from any circulating variants, it is not clear against which HIV variants the CTL induced by the artificial epitopes of SEQ ID NO: 25 would respond. Thus, it is unpredictable what are the advantages of the COT sequences, including SEQ ID NO: 25, over wild type viral sequences for their use as vaccines.

18. The MPEP state that the state of the prior art provides evidence for the degree of predictability in the art and it is inversely related to the amount of direction or guidance needed in the specification as filed to meet the enablement requirement. The state of the prior art also determines the quantitative and qualitative need for working examples in the specification (see MPEP 2164.05(a) [R-2]). *In re Fisher*, 427 F.2d 833,166 USPQ 18 (CCPA 1970) indicates that the more unpredictable an area is, the greater specificity of enablement is necessary in order to

satisfy the statute. In the instant case, the instant claimed invention is unpredictable since the state of art is silent regarding how to use the artificial COT sequences generated by mathematic manipulation as vaccine regiments or diagnostic probes. The specification does not contain any working examples to show how to use the COT sequences, including SEQ ID NO: 25. Therefore, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention.

Claim rejection-35 USC § 102

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

20. **(Prior rejection-withdrawn)** The rejection of Claims 15, 19-22, 25-30, 46 and 48 under 35 U.S.C. 102(b) as being anticipated by Shiver (WO 98/34640) **is withdrawn** in view of the amendment to the claims.

21. **(Prior rejection-maintained)** The rejection of Claim 45 under 35 U.S.C. 102(b) as being anticipated by Shiver (WO 98/34640), **is maintained**.

22. Applicant argues that the current pending claims refer to nucleic acid sequences that are

at least 70% identical to SEQ ID NO: 25; thus, Shiver does not anticipate the current claims.

23. Applicant's argument is not convincing because Shiver's codon-optimized HIVgag sequence SEQ ID NO: 1, which is 76% identical to the claimed SEQ ID NO: 25, still meets the limitation of Claim 45. Therefore, the rejection is maintained.

24. **(New rejection)** Claims 45 and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Gray (US Pat 6,958,226).

25. Claims 45 and 46 are directed to an isolated COT viral gene sequence, wherein the sequence is at least 70% or 90% identical to SEQ ID NO: 25.

26. Gray teaches an isolated HIV *gag* gene of HIV pNL4-3 clone (SEQ ID NO: 2), which is 98.3% identical to the instant SEQ ID NO: 25 (See line 39-45, col. 7), as evidenced by attached sequence alignment. This teaching anticipates Claims 45, 46 and 48.

Remarks

27. No claim is allowed. Accordingly, Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bo Peng, Ph.D. whose telephone number is 571-272-5542. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce Campell, Ph.D. can be reached on 571-272-0974. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Bo Peng/
January 15, 2008



ZACHARIAH LUCAS
PATENT EXAMINER



Blast 2 Sequences results

PubMed

Entrez

BLAST

OMIM

Taxonomy

Structure

BLAST 2 SEQUENCES RESULTS VERSION BLASTN 2.2.17 [Aug-26-2007]

Match: **1** Mismatch: **-2** gap open: **5** gap extension: **2**

x dropoff: 0 expect: 10.0000 wordsize: 11 Filter ☒ View option Standard

Masking character option **X for protein, n for nucleotide** Masking color option **Black**☐ Show CDS translation

Sequence 1: lcl|1

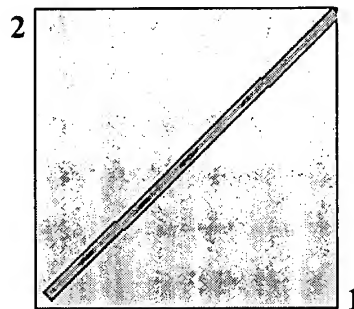
Length = 1503 (1 .. 1503)

SEQ ID NO: 25 (10/780,507)

Sequence 2: lcl|65536

Length = 1532 (1 .. 1532)

SEA ID NO: 1 (09/017, 981)
Shiver



NOTE:Bitscore and expect value are calculated based on the size of the nr database.

NOTE: If protein translation is reversed, please repeat the search with reverse strand of the query sequence.

Score = 808 bits (420), Expect = 0.0
Identities = 1100/1440 (76%), Gaps = 0/1440 (0%)
Strand=Plus/Plus

Query	64	AGGCCAGGGGGAAGAATAATAGATTAAACATATAGTATGGGCAAGCAGGGAGCTA	123
Sbjct	73	AGGCCTGGTGGAAGAAGTACAAGCTAAAGCACATTGTGTGGGCCTCCAGGGAGCTG	132
Query	124	GACGATTCGCAGTTAATCCTGGCCTGTTAGAAACATCAGAAGGCTGTAGACAAATACTG	183
Sbjct	133	GAGAGGTTTGCTGTGAACCCTGGCCTGCTGGAGACCTCTGAGGGGTGCAGGCAGATCCTG	192
Query	184	GGACAGCTACAACCATCCCCTTCAGACAGGATCAGAAGAACTTAGATCATTATATAATACA	243
Sbjct	193	GGCCAGCTCCAGCCCTCCCTGCAAACAGGCTCTGAGGAGCTGAGGTCCCTGTACAACACA	252
Query	244	GTAGCAACCCTCTATTGTGTGCATCAAAGGATAGAGGTAAAAGACACCAAGGAAGCTTTA	303

1/2/2008

```
Query 1204 GCCAAAAATTGCAGGGCCCCCTAGGAAAAAGGGCTGTTGGAAATGTGGAAAGGAAGGACAC 1263
          ||||| || || ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct 1213 GCCAAGAACTGTAGGGCCCCCAGGAAGAAGGGCTGCTGGAAGTGTGGCAAGGAGGGCCAC 1272

Query 1264 CAAATGAAAGATTGTACTGAGAGACAGGCTAATTTTTTAGGGAAGATCTGGCCTTCCCAC 1323
          || ||||| || || ||||| ||||| ||||| || || || ||||| ||||| |||||
Sbjct 1273 CAGATGAAGGACTGCAATGAGAGGCAGGCCAACTTCCTGGGCAAATCTGGCCCTCCCAC 1332

Query 1324 AAGGGAAGGCCAGGGAATTTTCTTCAGAGCAGACCAGAGCCAACAGCCCCACCAGAAGAG 1383
          ||||| ||||| || || || || || || || || || ||||| ||||| |||||
Sbjct 1333 AAGGGCAGGCCTGGCAACTTCCTCCAGTCCAGGCCTGAGCCCACAGCCCCTCCCGAGGAG 1392

Query 1384 AGCTTCAGGTTTGGGGAAGAGACAACAACCTCCCTCTCAGAAGCAGGAGCCGATAGACAAG 1443
          ||||| ||||| ||||| || || || || || || ||||| ||||| || |||||
Sbjct 1393 TCCTTCAGGTTTGGGGAGGAGAAGACCACCCCCAGCCAGAAGCAGGAGCCCATTGACAAG 1452

Query 1444 GAACTGTATCCTTTAGCTTCCCTCAGATCACTCTTTGGCAACGACCCCTCGTCACAATAA 1503
          || ||||| || || ||||| || || || || ||||| ||||| ||||| |||||
Sbjct 1453 GAGCTGTACCCCCTGGCCTCCCTGAGGTCCCTGTTTGGCAACGACCCCTCCTCCCAGTAA 1512
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CPU time: 0.04 user secs. 0.03 sys. secs 0.07 total secs.

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; Sequence 2, Application US/09393795
; Patent No. 6958226
; GENERAL INFORMATION:
; APPLICANT: Gray, John T.
; APPLICANT: Mulligan, Richard C.
; TITLE OF INVENTION: Packaging Cell Lines
; FILE REFERENCE: CMCC693p2A
; CURRENT APPLICATION NUMBER: US/09/393,795
; CURRENT FILING DATE: 1999-09-10
; PRIOR APPLICATION NUMBER: US 60/100,063
; PRIOR FILING DATE: 1998-09-12
; PRIOR APPLICATION NUMBER: US 60/100,022
; PRIOR FILING DATE: 1998-09-11
; NUMBER OF SEQ ID NOS: 12
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 2
; LENGTH: 1503
; TYPE: DNA
; ORGANISM: Homo sapien
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)...(1503)
US-09-393-795-2
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Query Match 97.3%; Score 1463; DB 3; Length 1503;
Best Local Similarity 98.3%; Pred. No. 0;
Matches 1478; Conservative 0; Mismatches 25; Indels 0; Gaps 0;
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      |||
Db      1 ATGGGTGCGAGAGCGTCGGTATTAAGCGGGGAGAATTAGATAAATGGGAAAAAATTCGG 60

QY      61 TTAAGGCCAGGGGGAAAGAAAAAATATAGATTAAAACATATAGTATGGGCAAGCAGGGAG 120
      |||
Db      61 TTAAGGCCAGGGGGAAAGAAACAATATAAACTAAAACATATAGTATGGGCAAGCAGGGAG 120

QY      121 CTAGAACGATTTCGAGTTAATCCTGGCCTGTTAGAAACATCAGAAGGCTGTAGACAAATA 180
      |||
Db      121 CTAGAACGATTTCGAGTTAATCCTGGCCTTTTAGAGACATCAGAAGGCTGTAGACAAATA 180

QY      181 CTGGGACAGCTACAACCATCCCTTCAGACAGGATCAGAAGAACTTAGATCATTATATAAT 240
      |||
Db      181 CTGGGACAGCTACAACCATCCCTTCAGACAGGATCAGAAGAACTTAGATCATTATATAAT 240

QY      241 ACAGTAGCAACCCTCTATTGTGTGCATCAAAGGATAGAGGTAAAAGACACCAAGGAAGCT 300
      |||
Db      241 ACAATAGCAGTCCTCTATTGTGTGCATCAAAGGATAGATGTAAAAGACACCAAGGAAGCC 300

QY      301 TTAGAGAAGATAGAGGAAGAGCAAAACAAAAGTAAGAAAAAGGCACAGCAAGCAGCAGCT 360
      |||
Db      301 TTAGATAAGATAGAGGAAGAGCAAAACAAAAGTAAGAAAAAGGCACAGCAAGCAGCAGCT 360

QY      361 GACACAGGAAACAGCAGCCAGGTCAGCCAAAATTACCCTATAGTGCAGAACCTCCAGGGG 420
      |||
Db      361 GACACAGGAAACAACAGCCAGGTCAGCCAAAATTACCCTATAGTGCAGAACCTCCAGGGG 420

QY      421 CAAATGGTACATCAGGCCATATCACCTAGAACTTTAAATGCATGGGTAAAAGTAGTAGAG 480
      |||
Db      421 CAAATGGTACATCAGGCCATATCACCTAGAACTTTAAATGCATGGGTAAAAGTAGTAGAA 480

QY      481 GAGAAGGCTTTTCAGCCCAGAAGTAATACCCATGTTTTCAGCATTATCAGAAGGAGCCACC 540
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Db	541	 CCACAAGATTTAAATACCATGCTAAACACAGTGGGGGGACATCAAGCAGCCATGCAAATG	600
Qy	601	TTAAAAGAGACCATCAATGAGGAAGCTGCAGAATGGGATAGATTGCATCCAGTGCATGCA	660
Db	601	 TTAAAAGAGACCATCAATGAGGAAGCTGCAGAATGGGATAGATTGCATCCAGTGCATGCA	660
Qy	661	GGGCCTATTGCACCAGGCCAGATGAGAGAACCAAGGGGAAGTGACATAGCAGGAAC TACT	720
Db	661	 GGGCCTATTGCACCAGGCCAGATGAGAGAACCAAGGGGAAGTGACATAGCAGGAAC TACT	720
Qy	721	AGTACCCTTCAGGAACAAATAGGATGGATGACAAATAATCCACCTATCCAGTAGGAGAA	780
Db	721	 AGTACCCTTCAGGAACAAATAGGATGGATGACACATAATCCACCTATCCAGTAGGAGAA	780
Qy	781	ATCTATAAAAGATGGATAATCCTGGGATTAAATAAAATAGTAAGAATGTATAGCCCTACC	840
Db	781	 ATCTATAAAAGATGGATAATCCTGGGATTAAATAAAATAGTAAGAATGTATAGCCCTACC	840
Qy	841	AGCATTCTGGACATAAGACAAGGACCAAAGGAACCCCTTTAGAGACTATGTAGACCGGTTTC	900
Db	841	 AGCATTCTGGACATAAGACAAGGACCAAAGGAACCCCTTTAGAGACTATGTAGACCGATTTC	900
Qy	901	TATAAAACTCTAAGAGCCGAGCAAGCTTCA CAGGAGGTAAAAAATTGGATGACAGAAACC	960
Db	901	 TATAAAACTCTAAGAGCCGAGCAAGCTTCA CAGGAGGTAAAAAATTGGATGACAGAAACC	960
Qy	961	TTGTTGGTCCAAAATGCGAACCAGATTGTAAGACTATTTTAAAAGCATTGGGACCAGCA	1020
Db	961	 TTGTTGGTCCAAAATGCGAACCAGATTGTAAGACTATTTTAAAAGCATTGGGACCAGGA	1020
Qy	1021	GCTACACTAGAAGAAATGATGACAGCATGTCAGGGAGTGGGGGGACCCGGCCATAAAGCA	1080
Db	1021	 GCGACACTAGAAGAAATGATGACAGCATGTCAGGGAGTGGGGGGACCCGGCCATAAAGCA	1080
Qy	1081	AGAGTTTTGGCTGAAGCAATGAGCCAAGTAACAAATTCAGCTACCATAATGATGCAGAGA	1140
Db	1081	 AGAGTTTTGGCTGAAGCAATGAGCCAAGTAACAAATCCAGCTACCATAATGATACAGAAA	1140
Qy	1141	GGCAATTTTAGGAACCAAAGAAAGACTGTTAAGTGTTC AATTGTGGCAAAGAAGGGCAC	1200
Db	1141	 GGCAATTTTAGGAACCAAAGAAAGACTGTTAAGTGTTC AATTGTGGCAAAGAAGGGCAC	1200
Qy	1201	ATAGCCAAAAATTGCAGGGCCCTAGGAAAAAGGGCTGTTGGAAATGTGGAAAGGAAGGA	1260
Db	1201	 ATAGCCAAAAATTGCAGGGCCCTAGGAAAAAGGGCTGTTGGAAATGTGGAAAGGAAGGA	1260
Qy	1261	CACCAAATGAAAGATTGTACTGAGAGACAGGCTAATTTTTTAGGGAAGATCTGGCCTTCC	1320
Db	1261	 CACCAAATGAAAGATTGTACTGAGAGACAGGCTAATTTTTTAGGGAAGATCTGGCCTTCC	1320
Qy	1321	CACAAGGGAAGGCCAGGGAATTTCTTCAGAGCAGACCAGAGCCAAAGCCCCACCAGAA	1380
Db	1321	 CACAAGGGAAGGCCAGGGAATTTCTTCAGAGCAGACCAGAGCCAAAGCCCCACCAGAA	1380
Qy	1381	GAGAGCTTCAGTTTGGGGAAGAGACAACAAC TCCCTCTCAGAAGCAGGAGCCGATAGAC	1440
Db	1381	 GAGAGCTTCAGTTTGGGGAAGAGACAACAAC TCCCTCTCAGAAGCAGGAGCCGATAGAC	1440

Qy	1441	AAGGA	ACTGT	ATCCTT	TAGCTT	CCCTC	AGATCA	CTCTTT	TGGCA	ACGACC	CTCGT	CACAA	1500
Db	1441	AAGGA	ACTGT	ATCCTT	TAGCTT	CCCTC	AGATCA	CTCTTT	TGGCA	ACGACC	CTCGT	CACAA	1500
Qy	1501	TAA	1503										
Db	1501	TAA	1503										

<!--EndFragment-->